

## CLAIMS

I claim:

1. A spinal rod sleeve system comprising a longitudinal spinal rod disposed within a concentric sleeve, said sleeve having an internal bearing layer and an external layer.

2. A system as in Claim 1 wherein said internal bearing layer is a low-friction material.

3. A system as in Claim 1 wherein said internal bearing layer is a plastic.

4. A system as in Claim 1 wherein said internal bearing layer is UHMWPE.

5. A system as in Claim 1 wherein said external layer is a metal.

6. A system as in Claim 1 wherein said external layer is a material selected from the group consisting of stainless steel, stainless steel alloys, cobalt chrome, cobalt chrome alloys, titanium and titanium alloys.

7. A method for treating a spinal disorder whose treatment would benefit from allowing a vertebra to slide cephalad or caudad along a spinal rod sleeve system, or otherwise preserving spinal motion, comprising providing a spinal rod sleeve system as in Claim 1 and anchoring said spinal rod sleeve system to a patient's spinal lamina, spinous processes, pedicles or posterior elements of the spine.

8. A method for treating long, progressive scoliotic curves in young patients while preserving longitudinal growth, comprising the

steps of providing a spinal rod sleeve system as in Claim 1 and anchoring said spinal rod sleeve system to a patient's spinal lamina, spinous processes, pedicles or posterior elements of the spine.

5     9. A system as in Claim 1, wherein said spinal rod is free to glide within said sleeve.

10. A system as in Claim 1, further comprising an anchor to a bone, to which said sleeve is attached.

10     11. A system as in Claim 10, further comprising a bumper or sleeve on the connecting rod.

12. A system as in Claim 11 wherein said bumper or sleeve is placed so as to restrict spinal extension to a desired range.

13. A system as in Claim 12 wherein said desired range is chosen so as to maintain a desired distance between rod sleeves.

15     14. A system as in Claim 11 wherein said anchor is selected from among the group consisting of screws, pedicle screws, wires, sublamina wires and hooks.

20     15. A method as in Claim 7, further comprising establishing a polyaxial (or rotating) or monoaxial (or fixed) attachment to the rod which selects out unwanted motion directions thereby allowing variation of the distance between vertebrae.

25     16. A spinal rod for a spinal rod sleeve system comprising a longitudinal spinal rod having an inner core and an outer bearing surface, said inner core being comparatively hard in relation to said outer bearing surface, and said outer bearing surface being

composed of UHMWPE.

17. A spinal rod sleeve for a spinal rod sleeve system comprising a sleeve having an outer casing surface and an inner bearing surface, said outer casing surface being comparatively hard in relation to said inner bearing surface, and said inner bearing surface being composed of UHMWPE.

18. A system for low friction arthroplasty, comprising a core disposed within a concentric sleeve which is harder than said core, so as to facilitate motion by articulation of said core with said concentric sleeve.